## Background

During the winter months, influenza causes approximately 20,000 deaths in the United States each year.[1] During influenza epidemics there is a twofold to fivefold increase in hospitalization rates in the elderly and persons with chronic medical conditions.[2] To lessen the impact of influenza, the Advisory Committee on Immunization Practices (ACIP) recommends that persons at risk for complications due to influenza be vaccinated each year.[1] The California Health and Safety Code Section 104900 mandates that publicly funded vaccine be made available to these high-risk persons, with priority given to healthy persons 60 years of age and older.

Vaccination Recommendations for the 2002-2003 Influenza Season

- ACIP recommendations[1]
  - Adults aged 50 years and older.
  - Residents of nursing homes and other chronic care facilities.
  - All persons with chronic health conditions (e.g. cardiovascular disease, asthma, pulmonary disease).
  - All persons who required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases, renal dysfunction, hemoglobinopathies, or immunosuppression.
  - Children and adolescents receiving long-term aspirin therapy.
  - Pregnant women in their second or third trimester.

- Los Angeles County Department of Health Services (DHS) recommendations
  - Adults aged 60 years and older.
    - In Los Angeles County (LAC), there are nearly 1.3 million persons age 60 years and over.
  - All other LAC-DHS recommendations for the 2002-2003 Influenza Campaign were the same as ACIP recommendations.

Influenza Campaign

- Publicly funded influenza vaccine from the California Department of Health Services is distributed by the Los Angeles County Immunization Program (LACIP) to public clinics, community and free clinics, skilled nursing facilities, and private providers who agree to hold public clinics. All other healthcare providers must purchase vaccine directly from the vaccine manufacturer for their patients and these data are not available.

- Participating healthcare providers immunize high-risk persons either in their clinic or during outreach programs (i.e., non-healthcare settings).

- Vaccine availability, the number of high-risk patients served by the provider, and the number of doses of vaccine used by the provider in previous years determine the amount of influenza vaccine each healthcare provider receives from LACIP.

## Methods

Collected Data

- Vaccine accountability forms are distributed to each healthcare provider administering publicly funded vaccine in order to collect the following information:
    - Healthcare provider name and locating information.
    - Whether vaccine was administered at the in-house clinic or as an outreach activity.
    - Date of vaccine administration.
    - Age and ethnicity of vaccine recipient for every dose administered.

Exclusion criteria

- The 2002-2003 Influenza Campaign began October 21, 2002. Providers continued to administer the influenza vaccine until the supply was depleted or the vaccine expired.

- Data for this report was collected through April 2003.

- Accountability forms submitted by providers not originally identified as vaccine recipients were excluded.

Data Analysis

- Number of doses administered at the influenza clinics, by race/ethnicity and age of the recipients.

- Number of doses administered by type of provider: Community Health Provider (community and free clinics and other private providers who agree to hold public vaccine clinics), DHS-Personal Health Center, DHS-Public Health Center, and Skilled Nursing Facility.

- Number of doses administered in each Service Planning Area (SPA).

## Results

The results are grouped into three categories:

I. Vaccine Administration – Overall Summary & Trends by Provider Type.
II. Vaccine Administration – Demographic Stratified Summary & Trends.
III. 2002-2003 Influenza Campaign Results

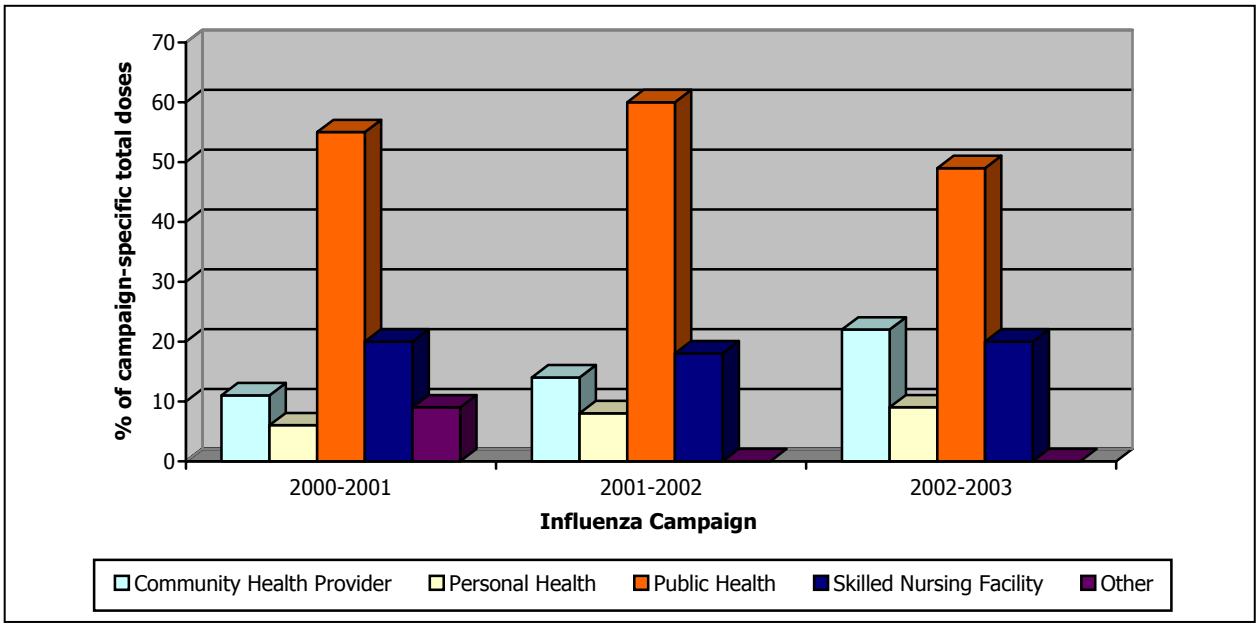
I. Vaccine Administration – Overall Summary & Trends by Provider Type.

**Table 1. Influenza Vaccine Doses Administered, by Provider Type, Los Angeles County, 2000-2003 Influenza Campaigns.**

| Provider Type | Influenza Campaign Years | | | | | |
|---|---|---|---|---|---|---|
| | 2000-2001 | | 2001-2002 | | 2002-2003 | |
| | n | (%) | n | (%) | n | (%) |
| Community Health Provider | 12,040 | (11.4) | 16,049 | (13.8) | 22,698 | (22.1) |
| DHS-Personal Health Center | 5,944 | (5.6) | 8,974 | (7.7) | 9,480 | (9.2) |
| DHS-Public Health Center[⊥] | 57,860 | (54.7) | 70,019 | (60.3) | 49,806 | (48.5) |
| Skilled Nursing Facility | 20,626 | (19.5) | 20,958 | (18.0) | 20,627 | (20.1) |
| Other[§] | 9,263 | (8.8) | 200 | (0.2) | 0 | (0) |
| Total | 105,733 | (100)* | 116,200 | (100)* | 102,611 | (100)* |

⊥ Includes outreach clinics.
§ Includes prisons, fire departments, rehabilitation centers, churches, and other non-Los Angeles County Health agencies.
*Percentages may not add up to 100 due to rounding approximation.

**Figure 1. Administration of influenza vaccine, by provider type and campaign year.**



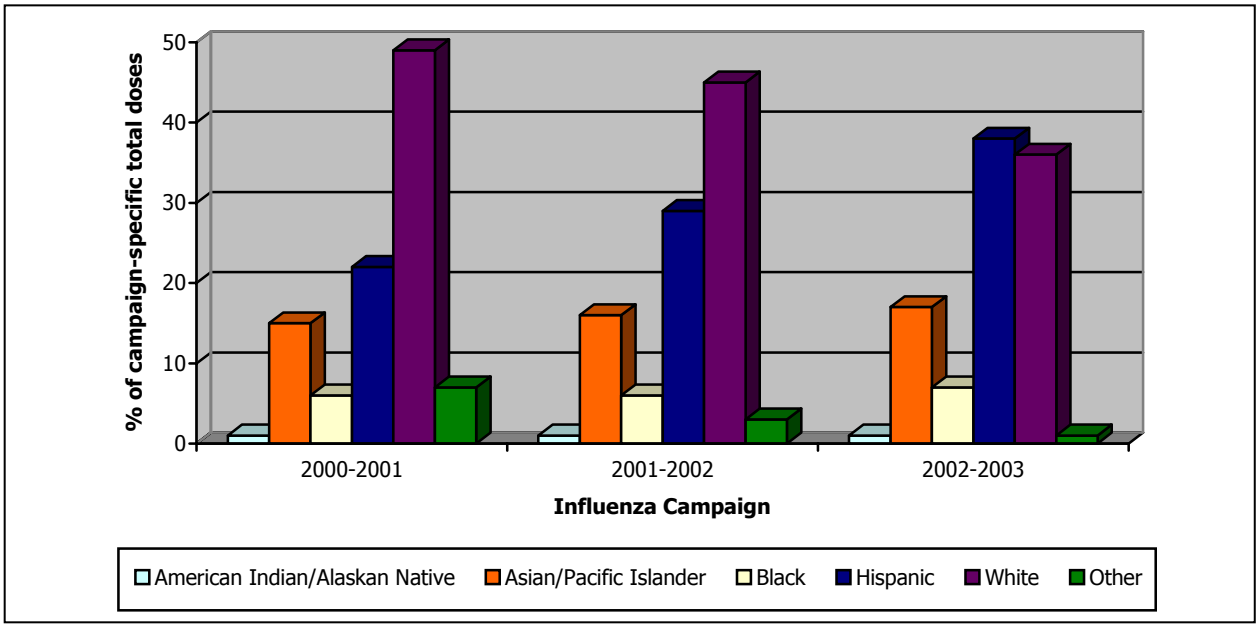

The 12% decrease (13,589 doses) in total doses administered in the 2002-2003 Influenza Campaign compared to the 2001-2002 Influenza Campaign was primarily due to a decrease in vaccine doses administered during Public Health Outreach clinics. However, compared to the 2001-2002 Campaign, the total number of doses administered in the 2002-2003 Campaign was not unusual. The 2000-2001 and 2001-2002 Campaigns experienced delays in vaccine shipment from vaccine manufacturers. During the 2001-2002 Campaign, vaccine was first distributed to Public Health Clinics and Skilled Nursing facilities to better target the populations at highest risk for influenza related complications. Because Community Health Providers received their vaccine later in the influenza season, they advised their patients to obtain the

vaccine from the Public Health Clinics. This led to the unusually large amount of vaccine administered by Public Health during the 2001-2002 Campaign.

In each campaign, Public Health Clinics and Skilled Nursing Facilities administered the largest proportion of the publicly funded influenza vaccine, with the exception of the 2002-2003 season. The proportion of vaccine doses administered by Community Health Providers has been increasing slightly each campaign year.

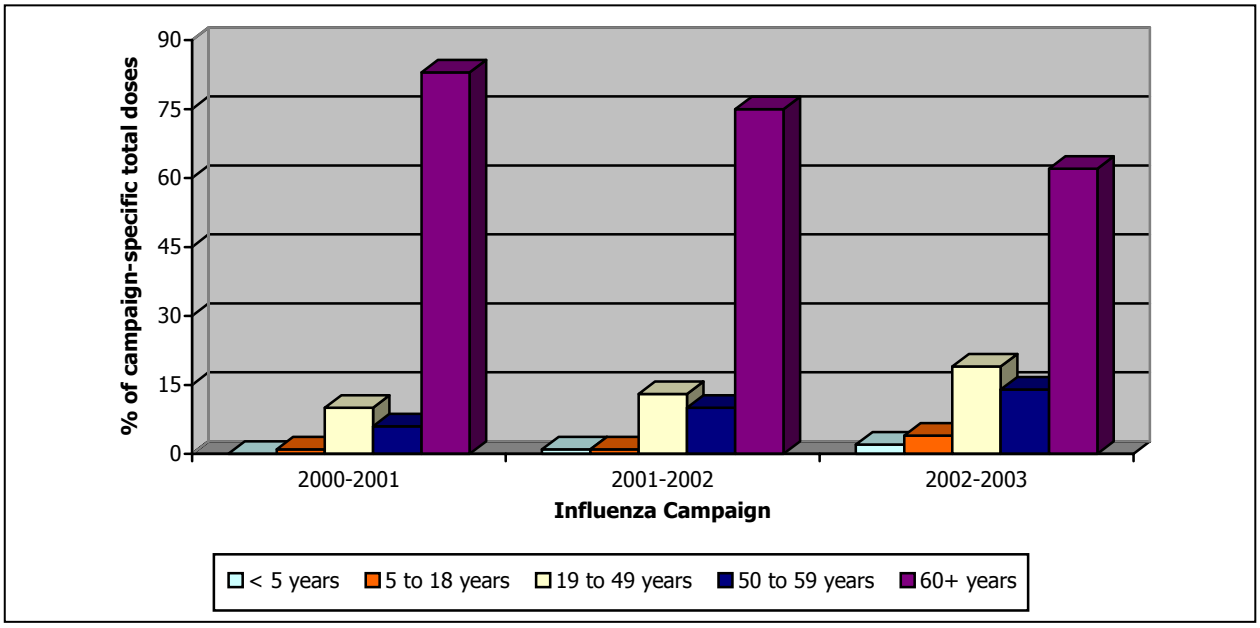
II. Vaccine Administration – Demographic Stratified Summary & Trends.

**Figure 2. Ethnic distribution of persons receiving publicly funded influenza vaccine, by campaign year.**



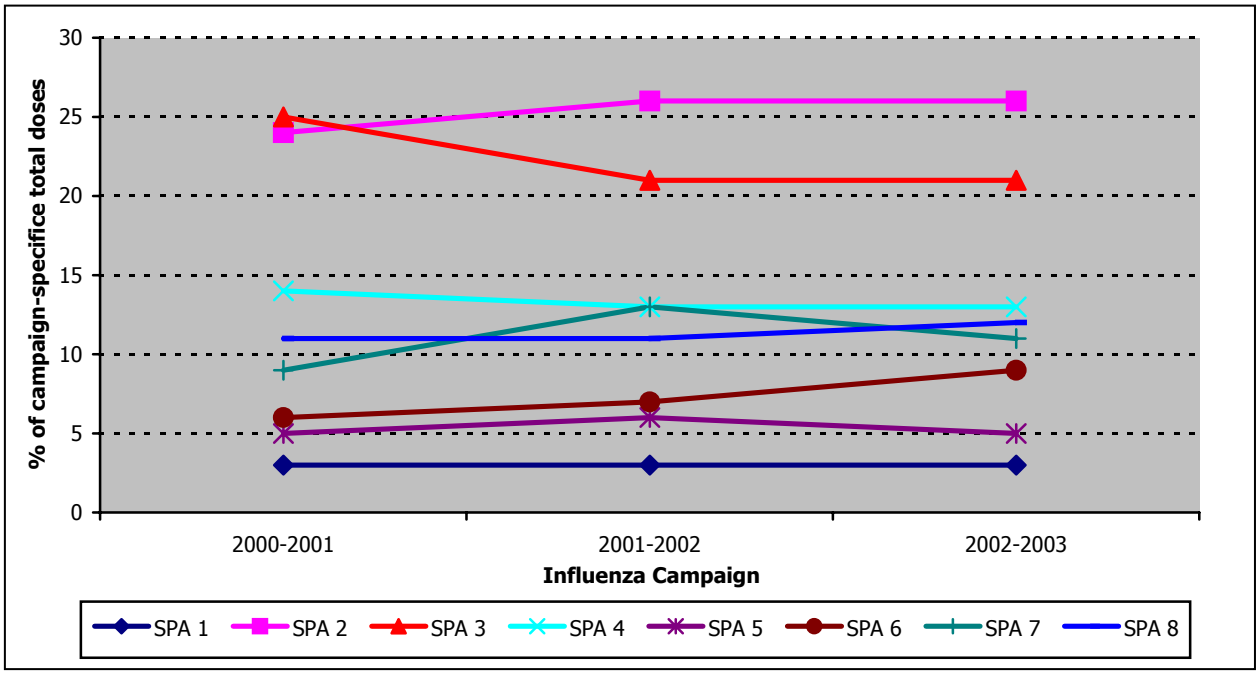

During the two previous influenza campaigns, the largest proportion of the vaccine was administered to White clinic/outreach attendees (2000-2001: 51,613 doses [49%]; 2001-2002: 51,984 doses [45%]). During the 2002-2003 Campaign, however, a slightly larger proportion of the vaccine was administered to Hispanics (39,313 doses [38%]), compared to Whites (37,270 doses [36%]). Approximately the same proportions of influenza vaccine have been administered to Asian/Pacific Islanders (APIs) and Blacks in each campaign (15%-17%; 6%-7%, respectively).

**Figure 3. Age distribution of persons receiving publicly funded influenza vaccine, by campaign year.**



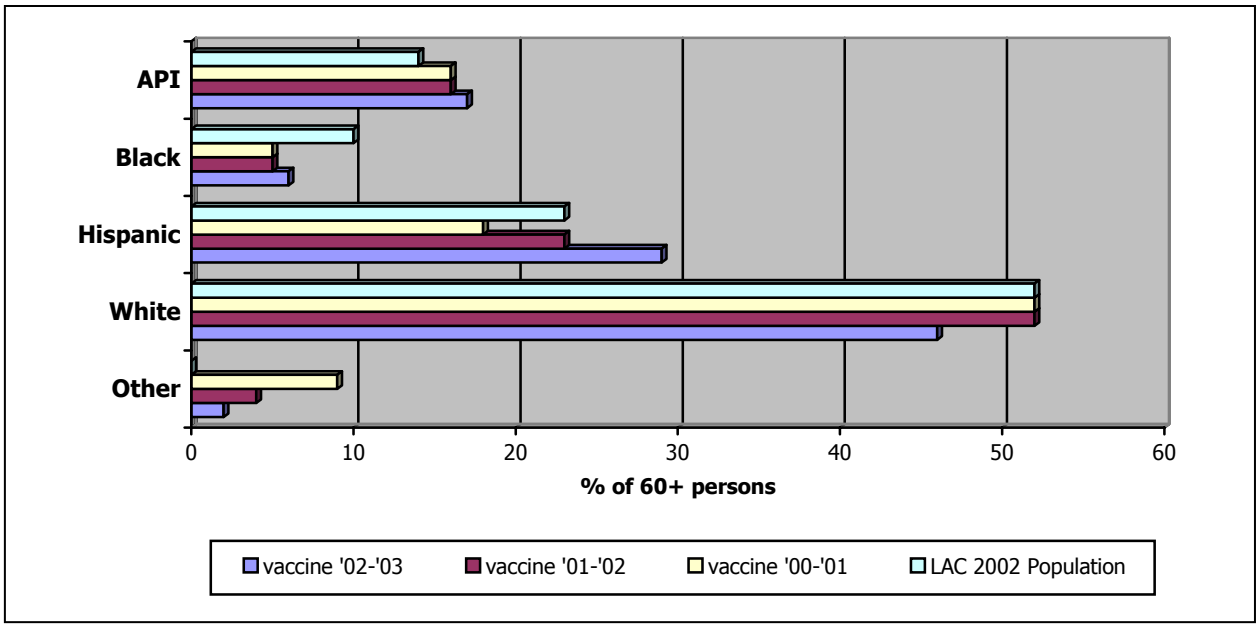

In all three campaigns, the majority of the vaccine was administered to persons 60 years of age and older, as recommended by ACIP. However, this proportion has decreased each year, from 83% (87,515 doses) in the 2000-2001 Campaign to 62% (63,892 doses) in the 2002-2003 Campaign. The proportion of influenza vaccine administered to the 19 - 49 and 50 - 59 age groups has increased each campaign.

**Figure 4. Proportion of total influenza vaccine administered in each SPA, by campaign year.**



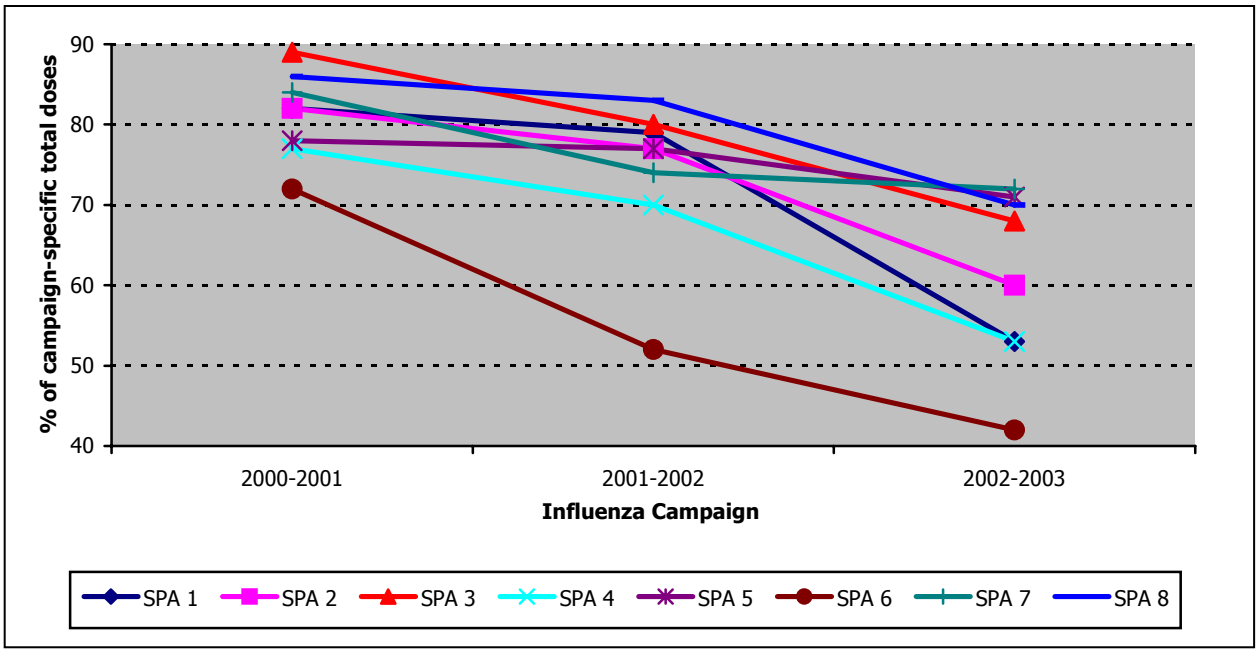

The amount of vaccine administered in each SPA is determined by the location of the provider administering the vaccine, not the residence of the vaccine recipients. For the majority of the SPAs, their proportion of the total influenza vaccine administered has remained approximately the same for each campaign year. SPAs 3 and 7 experienced dramatic changes in their proportion of the total administered vaccine when comparing the 2000-2001 and 2001-2002 campaigns (25% to 21% and 9% to 13%, respectively). In each campaign, SPA 6 has been steadily increasing in the proportion of the total vaccine administered by its providers. This increase is primarily due to the efforts to reach the Black population.

**Figure 5. Los Angeles County 60+ population and vaccine administered in persons 60 years and older, by race and campaign year.**




For the 2000-2001 and 2001-2002 Campaigns, similar proportions of administered vaccine were evidenced for APIs, Blacks, and Whites in those persons 60 years of age and older. In the 2002-2003 Campaign, the proportion administered to Whites decreased to 46% while the proportion administered to APIs and Blacks increased slightly (to 17% and 6%, respectively). The proportion of influenza vaccine administered to Hispanics has increased each campaign since the 2000-2001 Campaign, while the proportion administered to persons in the 'Other' category has decreased during the same time period, most likely due to improved record keeping. Across all three campaigns, the racial distribution of vaccine administered to persons 60 years of age and older differed slightly from the racial distribution of the 2002 LAC population.

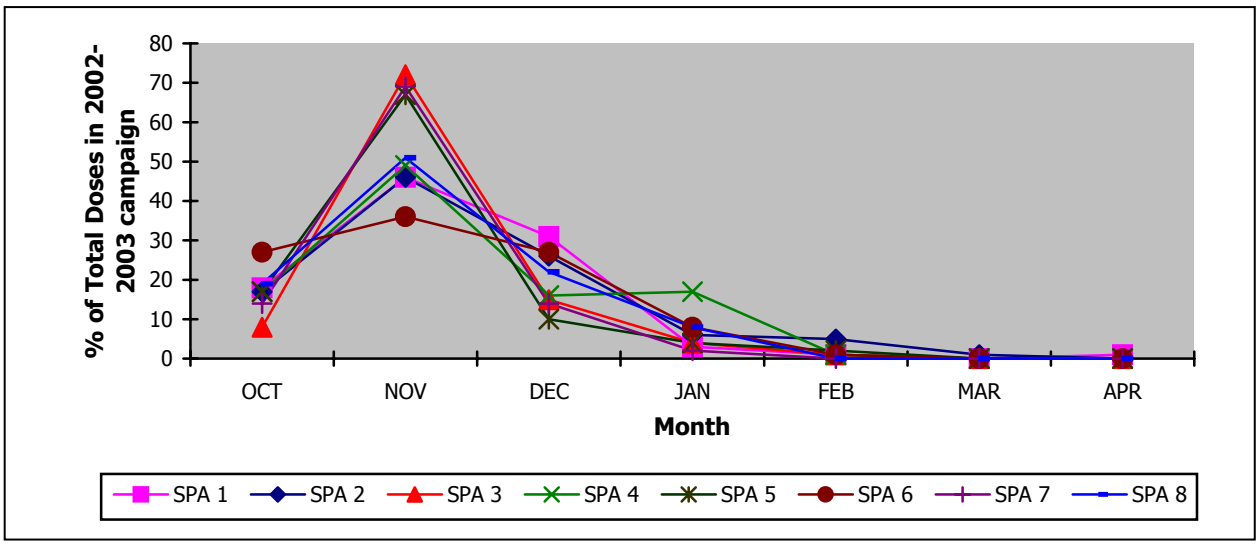
**Figure 6. Percentage of total influenza vaccine administered to persons 60+ years, by SPA and campaign.**




Within each SPA, the proportion of flu vaccine distributed to persons 60+ has decreased each successive campaign. The largest decreases occurred in SPA 1 (79% [2,396 doses] in the 2001-2002 Campaign to 53% [1,473 doses] in the 2002-2003 Campaign) and SPA 6 (72% [4,469 doses] in the 2000-2001 Campaign to 52% [4,409 doses] in the 2001-2002 Campaign).

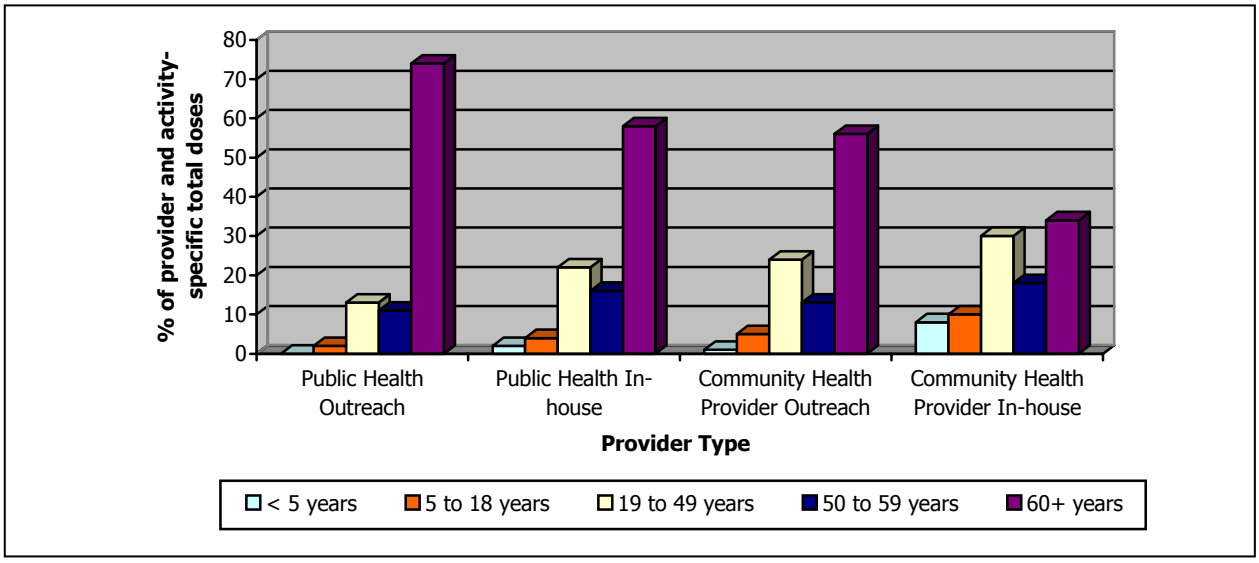
III. 2002-2003 Influenza Campaign Results

**Figure 7. Influenza vaccine administration each month, by SPA.**




During the 2002-2003 Campaign, each SPA administered the largest proportion of vaccine doses in November. SPA 6 seemed to administer large proportions of vaccine throughout the early months of the campaign (October through December).

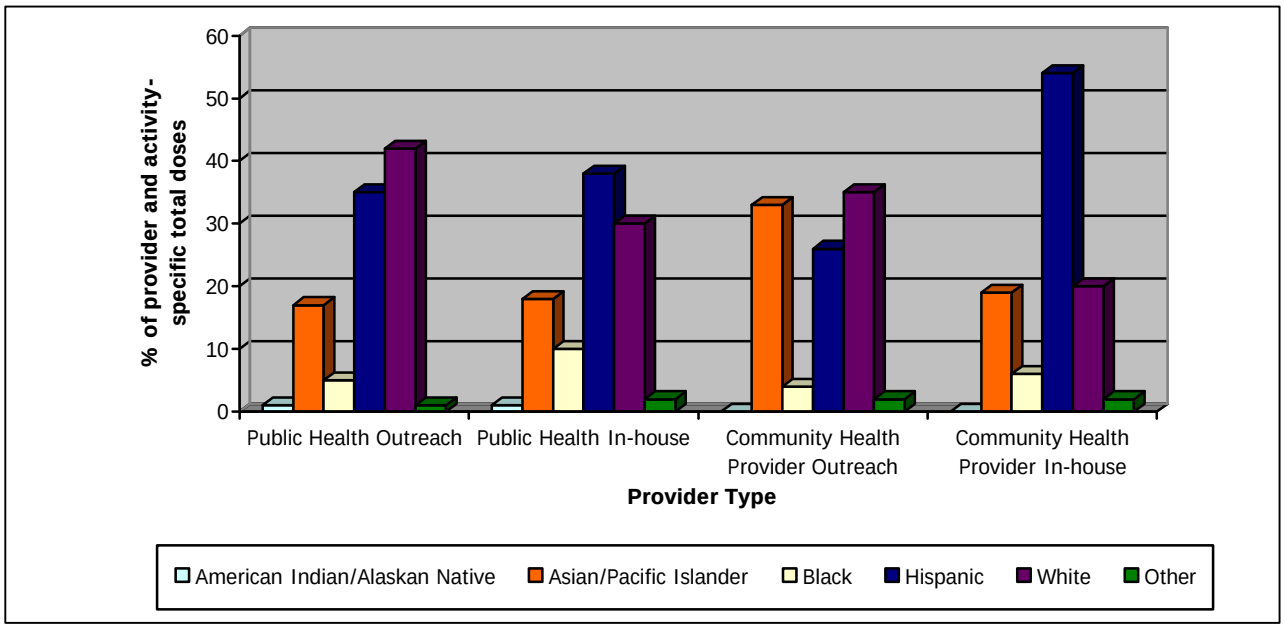
**Figure 8. Age distribution of persons attending public health and community health providers, by outreach and in-house clinics.**




Outreach clinics administered 48% (n=49,033 doses) of the influenza vaccine provided during the 2002-2003 Campaign. Both Public Health and Community Health Provider outreach clinics administered the largest proportion of their vaccine to persons 60 years of age or older (31,752 doses [74%]; 3,500 doses [58%], respectively). However, Community Health Provider outreaches administered vaccine to more persons in the 19 - 49 age group (1,437 doses [24%]) while Public Health outreach clinics administered vaccine primarily to the elderly.

***Erratum:*** *The following figure replaces Figure 9 from page 10 of the 2002-2003 Influenza Campaign report.*

**Figure 9. Ethnic distribution of persons attending public health and community health providers, by outreach and in-house clinics.**




The ethnic distribution of persons attending in-house clinics was similar for both Public Health and Community Health Providers. However, the ethnic distribution of persons attending Public Health outreach clinics was very different from the ethnic distribution of persons attending Community Health Provider outreach clinics. Predominantly Whites and Hispanics attended Public Health outreaches (17,955 doses [42%] and 14,890 doses [35%], respectively), which was also the case in the Public Health in-house clinics (2,034 doses [30%] and 2,634 doses [38%], respectively). The majority of persons attending outreach clinics conducted by Community Health Providers were API (1,999 doses [33%]) and White (2,136 doses [35%]). Community Health outreach clinics seemed to reach individuals that may not attend their in-house clinics. Overall, Public Health Providers seem to capture the same groups in their outreaches as in their in-house clinics, with the exception of Whites and Blacks. Whites were administered a larger number of influenza vaccine in Public Health outreach clinics compared to in-house clinics (17,955 doses [42%] and 2,034 doses [30%], respectively). Although Blacks received a smaller proportion of vaccine administered during Public Health outreaches compared to Public Health in-house clinics (5% and 10%, respectively), the actual number of doses administered to Blacks during outreach clinics was much larger than the number administered to Blacks during in-house clinics (2,233 doses vs. 685 doses).

## Discussion

Summary

- Public Health Outreach clinics administered the largest proportion of influenza vaccine to the LAC population over the last three campaigns.

- Over the past three influenza seasons, the age and racial distributions of persons receiving publicly funded vaccine through the influenza campaign has been consistent. In each campaign, the majority of the influenza vaccine was administered to Whites and Hispanics and the smallest proportion to Blacks and American Indian/Alaskan Natives. Although this is partially due to the ethnic distribution in LAC, special efforts to reach the American Indian/Alaskan Native and Black communities are needed.

Limitations

- It is difficult to assess to what extent the annual influenza campaign reached its target population.
    - Age and race is not collected in the same manner at all clinic sites.
    - Information on chronic conditions is not currently collected. This makes it impossible to know whether the persons under 60 years of age receiving the vaccine actually have a chronic condition listed in the ACIP recommendations.

- Information on vaccine usage during the influenza campaigns cannot be used to determine influenza vaccine coverage levels for LAC.
    - Currently, there are no reliable means for determining how many seniors or persons with chronic conditions receive non-publicly funded influenza vaccine from their primary medical doctor.

## References

[1] Centers for Disease Control and Prevention. *Prevention and Control of Influenza. Recommendations From the Advisory Committee on Immunization Practices (ACIP).* MMWR 2002; 51(No. RR-3).

[2] Centers for Disease Control and Prevention. *Surveillance for Influenza - United States, 1994-95, 1995-96, and 1996-97 Seasons*. MMWR 2000; 49(No. SS-3): 13-28.